

**UNRECORDED**

# (12) UK Patent Application (19) GB (11) 2 248 762 (13) A

(43) Date of A publication 22.04.1992

(21) Application No 9121357.9

(22) Date of filing 09.10.1991

(30) Priority data

(31) 02105938

(32) 11.10.1990

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(51) INT CL<sup>8</sup>

A43C 15/00

(52) UK CL (Edison K)

A3B B14A5

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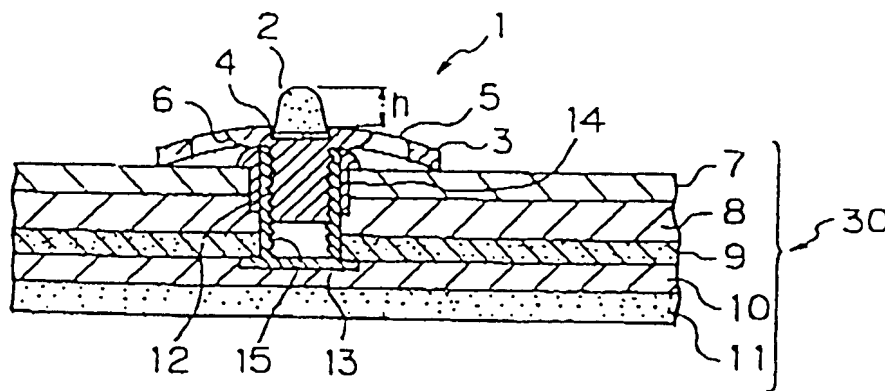
(58) Field of search

UK CL (Edison K) A3B

INT CL<sup>8</sup> A43C

(54) A spike for a golf shoe

(57) A golf shoe spike 1 having a tip portion projecting from the sole of the golf shoe, the tip portion having a length of approximately four millimeters. The length of the tip portion is made shorter, to ensure a more stable swing and to reduce a resistance and a load on the feet of a golfer. The spike can be removably secured to the sole of the golf shoe, and thus can be repaired or replaced when damaged. Also, the flange of the spike is provided with a drainage opening 5 for draining off water entering a gap between the sole of the shoe and the flange.



**FIG. 2**

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patent Rules 1990.

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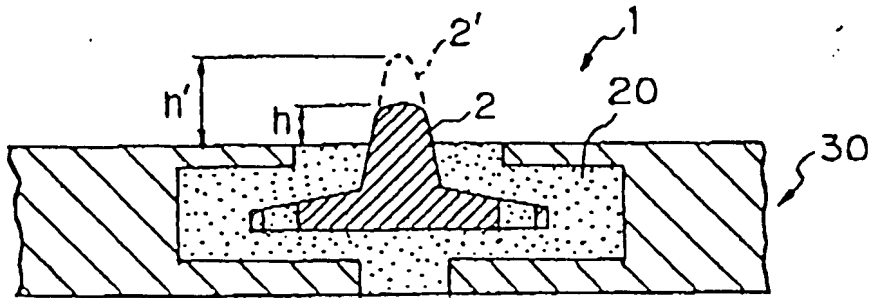


FIG. 1

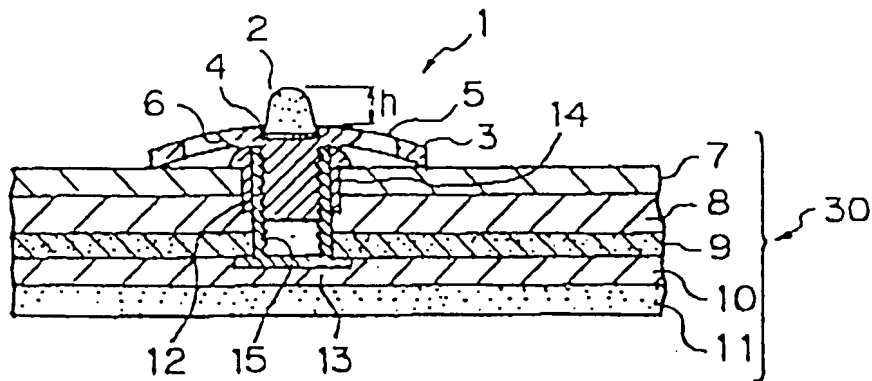


FIG. 2

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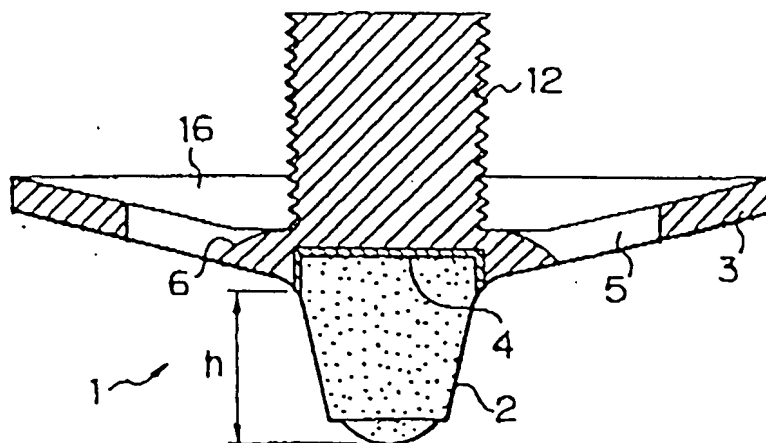


FIG. 3

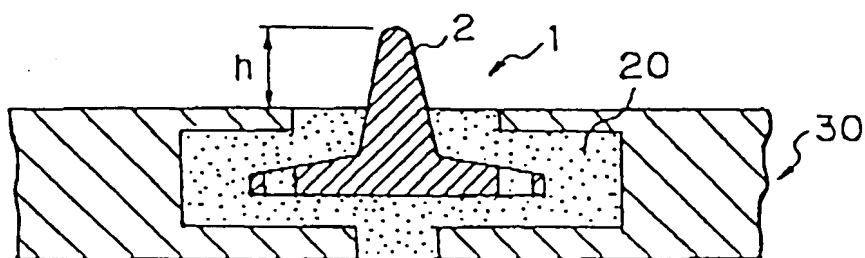


FIG. 4

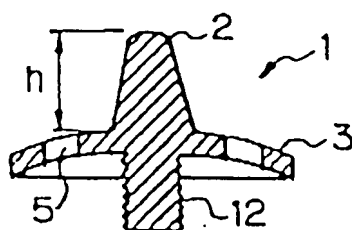


FIG. 5

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A SPIKE FOR A GOLF SHOE

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

5 The present invention relates to a spike for a golf shoe, and in particular, the present invention relates to a shoe spike having a shorter length.

## 2. Description of the Related Art

10 Conventionally, golf shoe spikes are made of various materials, such as steel, tungsten, or new ceramics, and are secured to the sole of the golf shoe in such a manner that the spikes are permanently or removably fixed to the sole.

15 Figure 4 of the attached drawings shows an example of a conventional new ceramics shoe spike permanently fixed to the sole of the golf shoe, and Fig. 5 shows an example of a steel shoe spike removably secured to the sole. In Fig. 4, the shoe spike 1 having a spike tip 2 is permanently fixed to the sole 30 by an attachment member 20 incorporated in the sole 30, and a portion of the spike tip 2 having a length "h" projects from the sole 30. In Fig. 5, the removable shoe spike 1 is formed as an integral unit comprising a spike tip 2 having a length "h", a stem 12 having a thread and a flange 3 having holes 5 allowing a tool to be engaged therewith for rotating the shoe spike 1. In the latter case, the length "h" is defined by a length between the 25 tip end of the spike tip 2 and the junction of the flange 3 with the stem 12.

30 The length "h" of the conventional shoe spikes, as shown in Figs. 4 and 5, is approximately 7.5 to 8 millimeters.

This length is traditional and is based on the following history. At first, the spikes for golf shoes were made from steel, and were designed on the premise that wear of the spikes will make it necessary for them

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to be periodically removed from the golf shoes and replaced with new spikes. Therefore, the spikes for golf shoes were initially designed by considering the wear of the spike tip during use, with the corresponding shortening of the length thereof, and thus the length "h" was fixed at approximately 7.5 to 8 millimeters. This value of the length "h" has not been changed since then. Also, the soles of the golf shoes were initially entirely made of leather, but there have been remarkable improvements in the soles, etc., of golf shoes due to the development of synthetic resins and accompanying developments of shoes spikes made from a wear-resistant material such as tungsten or new ceramics. Nevertheless the length of the shoes spikes has not been changed, and the traditional dimension thereof is still maintained.

The length "h" of approximately 7.5 to 8 millimeters, as traditionally determined, is a good dimension in view of the functions of the shoe spikes, for example, shoe spikes of that length provide the golf shoes with a good grip on the ground, and thus prevent any power loss due to a slip of the foot during a swing, and prevent a golfer from slipping when walking, in particular on wet grass or on a slope. Nevertheless, these shoe spikes have several disadvantages, in that the length of the conventional spikes is in practice too long; i.e., they tend to cause an unstable swing motion because they hold the sole of the shoe in a fixed position during a body turning motion fundamental to a good swing; for example, when a right-handed golfer turns from right to the left, during the body-turning motion, the follow-up motion or walkthrough of the right foot becomes difficult. In particular, since most golf courses today are very well maintained, the shoe spikes need not have the above defined length. To the contrary, it has been found that shoe spikes having a shorter length provide a golfer with a more stable swing and thus a better flight direction and further distance of the

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golf ball when hit. Also, the longer spikes cause discomfort to the sole of the foot of the golfer when walking, and thus causes an increased foot fatigue. Also, if the spikes are longer, the spikes tend to cause more damage to the grass. Due to the recent golf boom, many beginners are now playing golf, and this will become a cause of severe damage to grass by such shoe spikes.

#### SUMMARY OF THE INVENTION

The object of the present invention is to solve the above-described problems and to provide a golf shoe spike having a length shorter than that of the conventional shoe spike to thereby ensure a stable swing, to mitigate fatigue while playing golf, and to protect the grass on the greens.

Therefore, according to the present invention, there is provided a spike for a golf shoe having a sole, said spike having a base portion able to be secured to the sole of the golf shoe and a tip portion projecting from the sole of the golf shoe, the tip portion having a length of approximately four millimeters.

With this arrangement, since the length of the tip portion of the spike is shorter than that of a conventional shoe spike, the sole is less inclined during a body-turning motion of a swing and a follow-up motion of the foot becomes easy, resulting in a stable swing. Also, the resistance and load on the feet of a golfer are reduced. Also, damage to the grass by shoe spikes is minimized.

Preferably, the shoe spike is removably fixed to the sole of the golf shoe, for a repair or substitution thereof when worn or damaged.

Preferably, the base portion of the spike comprises a stem with a thread at one end thereof and able to be threaded into the sole of the golf shoe, a flange radially extending from and integrally formed with the stem at the other end thereof, and a spike tip including the tip portion being fixed to the stem at the other end

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thereof, the flange having at least one drainage opening.

By providing the drainage opening in the flange, water entering a gap between the sole of the shoe and the flange of the shoe spike is allowed to drain off. In this case, preferably the flange is provided with at least one hole formed with a surrounding wall, to allow a tool to be engaged therewith for rotating the spike, and the surrounding wall includes a tapered wall located on the side of the stem and tapering outwardly from the stem, this tapered wall constituting the drainage opening.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more apparent from the following description of the preferred embodiments, with reference to the accompanying drawings, in which:

Fig. 1 is a cross-sectional view of a golf shoe spike according to the first embodiment of the present invention, showing the shoe spike when permanently fixed to the sole of the golf shoe;

Fig. 2 is a cross-sectional view of a golf shoe spike according to the second embodiment of the present invention, showing the shoe spike when removably secured to the sole of the golf shoe;

Fig. 3 is an enlarged cross-sectional view of the shoe spike of Fig. 2;

Fig. 4 is a view of a prior art shoe spike, showing the shoe spike when permanently fixed to the sole of the golf shoe; and

Fig. 5 is a further view of a prior art shoe spike, showing the shoe spike when removably secured to the sole of the of golf shoe.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 shows an example of a shoe spike 1 permanently fixed to a sole 30 of a golf shoe. The shoe spike 1 has a spike tip 2 made of a new ceramics material and is fixed to the sole 30 by an attachment member 20 incorporated in the sole 30. A portion of the spike

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tip 2 projecting from the sole 30 has a length "h" of approximately 4 millimeters. The profile of a conventional spike tip 2 shown in Fig. 1, as a phantom, has a length "h'" of approximately 7.5 to 8 millimeters. As can be seen from Fig. 1, the length "h" of the portion of the shoe spike 1 projecting from the sole 30 is approximately one half the length "h'" of the portion of the spike tip 2' of the prior art shoe spike.

Figure 2 shows an example of a shoe spike 1 removably secured to a sole 30 of a golf shoe. The shoe spike 1 has a spike tip 2 made of a new ceramics material and having a length "h" of 4 millimeters. The sole 30 comprises a plurality of layers composed of a sole bottom plate 7 made of a waterproof special resin (e.g., a resin marketed under the trade name of ALPEE), cushion plates 8 and 10 made of foamed urethane and arranged on the inside surface of the sole bottom plate 7, a reinforcing plate 9 made of resin and arranged between the cushion plates 8 and 10, and an insole 11. An attachment member 13 having a female thread 15 is incorporated in the sole 30, and a waterproof cylindrical member 14 made of an elastic material is arranged between the attachment member 13 and the sole 30, to prevent an entry of water into the golf shoe. The shoe spike 1 has a stem 12 on which a male thread is formed, and accordingly, the shoe spike 1 can be secured to the sole 30 by a threaded engagement of the male thread of the stem 12 with the female thread 15 of the attachment member 13.

Figure 3 shows the shoe spike 1 in detail. The shoe spike 1 in Fig. 3 is shown in a reverse relationship to that of Fig. 2, to clarify the description regarding the drainage of water. As described above, the spike tip 2 is made of a new ceramics material and has a length "h" of 4 millimeters. This spike tip 2 is adhered to a steel base of the shoe spike 1 by an adhesive 4; the base comprising the stem 12 with the male thread and a flange 3 radially extending from and integrally formed



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with the stem 12 at the end thereof. The flange 3 has a hole 5 formed therein with a surrounding wall, to allow a tool (not shown) to be engaged therewith for rotating the shoe spike 1 when securing the shoe spike 1 to the sole 30 by the threaded engagement of the male thread of the stem 12 with the female thread 15 of the attachment member 13.

The flange 3 is tapered radially upwardly, and thus a dish-shaped concave space 16 is formed in the flange 3 when the shoe spike 1 is secured to the sole 30 of the golf shoe. There is a tendency for water to gather in a portion of the concave space 16 at the junction of the flange 3 with the stem 12, and therefore, a drainage opening is provided to drain water in the concave space 16 from the bottom thereof, to prevent the sole of the golf shoes from becoming wet. The drainage opening is preferably located at the surrounding wall of each of the holes 5 used for rotating the shoe spike 1, in the form of a tapered wall 6 located on the side of the stem 12, i.e., on the side of the junction of the flange 3 with the stem 12, and tapering outwardly from the stem 12.

The following is an example of the component of a new ceramics material used for the spike tip 2 of the golf shoe spike 1.

component	content(%)
Ti(Titanium)	47 - 54
Ni(Nickel)	18 - 21
Mo(Molybdenum)	8 - 13
C(Carbon)	11 - 15
Co(Cobalt)	3 - 5

The used new ceramic material mainly includes

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titanium and nickel, as is clear from the above table, and such a material is marketed under the trade name of CERMET (Fd-1). The shoe spike 1 made from the new ceramics material is extremely wear-resistant, and thus  
5 can be used for a longer term even though the length thereof is shorter.

As explained above, according to the present invention, the length of the tip portion 2 of the shoe spike 1 is made shorter than that of a conventional shoe  
10 spike, and thus provides a stable swing, mitigates fatigue during walking, and reduces damage to the grass of the golf course. If the length of the tip portion 2 of the shoe spike 1 is made shorter, or when the shoe spike 1 is worn or damaged, some disadvantages may arise,  
15 but the damaged or worn shoe spike 1 can be repaired or replaced if the shoe spike 1 is removably secured to the sole 30 of the golf shoe. Also, it is possible to drain off water entering a gap between the sole 30 and the flange 3 of the shoe spike 1, by providing the drainage  
20 opening in the flange 3 of the shoe spike 1.

The present invention has been described with reference to the particular embodiments, but it is understood that the present invention is not restricted to the illustrated embodiments and modifications thereto  
25 can be made within the scope of the attached claims.

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CLAIMS

1. A spike for a golf shoe having a sole, said spike having a base portion able to be secured to the sole of the golf shoe and a tip portion projecting from the sole of the golf shoe, the tip portion having a length of approximately four millimeters.
2. A golf shoe spike according to claim 1, wherein the spike is able to be removably secured to the sole of the golf shoe.
3. A golf shoe spike according to claim 2, wherein the base portion of the spike comprises a stem with a thread at one end portion thereof and able to be threaded into the sole of the golf shoe, a flange radially extending from and integrally formed with the stem at the other end portion thereof, and a spike tip including the tip portion being fixed to the stem at the other end thereof, the flange having at least one drainage opening.
4. A golf shoe spike according to claim 3, wherein the flange has at least one hole formed with a surrounding wall, to allow a tool to be engaged therewith for rotating the spike, and the surrounding wall includes a tapered wall located on the side of the stem and tapering outwardly from the stem, said tapered wall constituting the drainage opening.
5. A golf shoe spike according to claim 3, wherein the spike tip is made from a new ceramics material.
6. A golf shoe spike according to claim 3, wherein the stem and the flange are integrally made from a metal, and the spike tip is adhered to the stem at one end thereof.